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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/671,770	09/28/2000	Geoffrey Owen Blandy	AUS9-2000-0570-US1	7435

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EXAMINER

ALI, SYED J

ART UNIT	PAPER NUMBER
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2127

DATE MAILED: 04/29/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/671,770

Applicant(s)

BLANDY ET AL.

Examiner

Syed J Ali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed February 23, 2004. Claims 1-30 are presented for examination.

2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Rejections - 35 USC § 102

3. Claims 1-8, 11-18, and 21-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Crelier (USPN 6,151,703).

4. As per claim 1, Crelier teaches the invention as claimed, including a method of calling a portion of computer code in a multithreaded environment, comprising:

receiving a call to the portion of computer code (col. 4 lines 8-35);

determining if the portion of computer code is currently being compiled (col. 12 line 57 - col. 13 line 3); and

redirecting the call to an interpreter, if the portion of computer code is currently being compiled (col. 12 line 57 - col. 13 line 3).

5. As per claim 2, Crelier teaches the invention as claimed, including the method of claim 1, wherein the portion of computer code is a Java method (col. 3 lines 43-56).

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6. As per claim 3, Crelier teaches the invention as claimed, including the method of claim 1, wherein redirecting the call to an interpreter includes redirecting the call to a Java Virtual Machine Interpreter such that the portion of computer code is interpreted by the Java Virtual Machine Interpreter in response to receiving the call to the portion of computer code (col. 12 line 57 - col. 13 line 3).

7. As per claim 4, Crelier teaches the invention as claimed, including the method of claim 1, wherein determining if the portion of computer code is currently being compiled includes determining a setting of a flag in a control block of the portion of computer code (col. 11 lines 19-40).

8. As per claim 5, Crelier teaches the invention as claimed, including the method of claim 1, wherein the step of redirecting the call is performed in response to a Just-In-Time [JIT] invoker field, in a control block of the portion of computer code, pointing to a JIT to Java Virtual Machine [JVM] routine (col. 12 lines 18-30).

9. As per claim 6, Crelier teaches the invention as claimed, including the method of claim 1, further comprising:

determining if compilation of the portion of computer code has ended (col. 12 lines 31-40); and

redirecting the call to a compiled version of the portion of computer code if the compilation of the portion of computer code has ended (col. 12 lines 31-40).

10. As per claim 7, Crelier teaches the invention as claimed, including the method of claim 6, wherein redirecting the call to a compiled version of the portion of computer code is performed in response to setting a Just-In-Time [JIT] invoker field, in a control block of the portion of computer code, to point to the compiled version of the portion of computer code (col. 12 lines 31-40).

11. As per claim 8, Crelier teaches the invention as claimed, including the method of claim 1, wherein the portion of computer code is a Java method having an associated method block and wherein the steps of determining if the portion of computer code is currently being compiled and redirecting the call are performed based on information stored in fields of the method block (col. 11 lines 19-40).

12. As per claims 11-18, Crelier teaches the invention as claimed, including an apparatus for implementing the method of claims 1-8, respectively (Fig. 1, element 100).

13. As per claims 21-28, Crelier teaches the invention as claimed, including a computer program product in a computer readable medium for implementing the method of claims 1-8, respectively (Fig. 1, elements 102 and 107).

Claim Rejections - 35 USC § 103

14. Claims 9-10, 19-20, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crelier.

15. As per claim 9, Crelier teaches the invention as claimed, including the method of claim 8, wherein the method block includes a field that includes a pointer that points to a Java Virtual Machine [JVM] interpreter before a Just-In-Time [JIT] compiler is loaded, points to a JIT compiler routine invokeCompiler when the JIT compiler is loaded, and points to a routine which calls a compiled version of the method once the method is compiled by the JIT compiler (col. 12 lines 18-40).

16. “Official Notice” is taken that the differences between the claimed JIT compiler routine “CompileThisMethod” and the routine “invokeCompiler” taught by Crelier are incidental. While there may be differences in the implementation of the routines, both are invoked by the JIT compiler that handles the compilation of a called method, and are therefore functionally equivalent.

17. As per claim 10, Crelier teaches the invention as claimed, including the method of claim 8, wherein the method block includes a field having a pointer that points to a Just-In-Time [JIT] compiler routine invokeCompiler when the JIT compiler is loaded and points to a compiled version of the method when compilation of the method by the JIT compiler is complete.

18. "Official Notice" is taken that the claimed JIT compiler routine "CompileThisMethod" and the routine "invokeCompiler" are functionally equivalent for the same reasons discussed above in paragraph 16.

19. As per claims 19-20, Crelier teaches the invention as claimed, including an apparatus for implementing the method of claims 9-10, respectively (Fig. 1, element 100).

20. As per claims 29-30, Crelier teaches the invention as claimed, including a computer program product in a computer readable medium for implementing the method of claims 9-10, respectively (Fig. 1, elements 102 and 107).

Response to Arguments

21. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new grounds of rejection.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wimble (USPN 5,812,850) teaches inline code expansion to eliminate redundant compiling.

Chambers et al. (USPN 6,427,234) teaches dynamic compilation using annotation in combination with inline code expansion.

Alexander, III et al. (USPN 6,507,946) teaches inline code expansion for callee methods that are non-final, i.e. undergoing compilation.

Czajkowski (USPN 6,675,375) teaches annotated compilation of Java methods.

23. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on March 26, 2004 prompted the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali
April 20, 2004



MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100